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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/084,405	02/25/2002	Srinivasan Viswanathan	103.1061.01	8754

22883 7590 11/20/2003  
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EXAMINER
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TRUONG, BAO Q

ART UNIT	PAPER NUMBER
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2187

DATE MAILED: 11/20/2003

24

Please find below and/or attached an Office communication concerning this application or proceeding.

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**Office Action Summary**

Application No.

10/084,405

Applicant(s)

VISWANATHAN ET AL.

Examiner

Bao Q Truong

Art Unit

2187

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 25 February 2002.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-17 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-4, 6, 7, 9-12, 14, 15 and 17 is/are rejected.
- 7) ☒ Claim(s) 5, 8, 13 and 16 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 25 February 2002 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. §§ 119 and 120**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All b) ☐ Some \* c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
\* See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.  
a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_ 6) ☐ Other: \_\_\_\_\_

1. The instant application having Application No. 10/084,405 has a total of 17 claims pending in the application; there are 3 independent claims and 14 dependent claims, all of which are ready for examination by the examiner.

***Oath/Declaration***

2. The applicant's oath/declaration has been reviewed by the examiner and is found to conform to the requirements prescribed in 37 C.F.R. § 1.63.

***Information Disclosure Statement***

3. As required by M.P.E.P § 609 (C), the applicant's submission of the Information Disclosure Statement, dated on 30 May 2002, is acknowledged by the examiner; and the cited reference has been considered in the examination of the claims now pending. As required by M.P.E.P § 609 C (2), a copy of the PTO-1449 initialed and dated by the examiner is attached to the instant office action.

***Drawings***

4. The drawings are objected to because figure 3 fails to provide "path-selecting" value for the flow diagram at step 307.

A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

*Specification*

5. The disclosure is objected to because of the following informalities:

On line 13-14 of page 3, the applicant cites, "Although this method allows a disk to **bee** inactivated and reactivated". That phrase should be changed to "Although this method allows a disk to **be** inactivated and reactivated". Appropriate correction is required.

*Claim Objections*

6. Claim 1 is objected to because of the following informalities:

On line 1 of claim 1, the applicant cites, "In a computer system having;". The semi colon should be either removed or changed to a colon.

Appropriate correction is required.

***Claim Rejections - 35 USC § 102***

7. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

8. Claims 1-2, 6-7, 9-10, 14-15, and 17 are rejected under 35 U.S.C. 102(b) as being anticipated by Kedem (U.S. Patent No. 6,154,853).

Referring to claim 1, Kedem teaches, in a computer system having a file system that controls reads and writes to a set of disks (see figure 1: elements 12a-n; and figure 2: elements 22a-n, 24), a RAID subsystem providing redundancy among groups of said disks (see figure 2), and wherein said file system or said RAID subsystem is responsive to inactivity of one or more disks to reconstruct data from those inactive disks (see “Abstract”); a method, including:

identifying one or more disks to be made temporarily inactive as a storage device among the active set of storage devices has been identified as entering a failing state (see figure 4 and column 4: lines 63-66);

responding, by said file system, to said identification by marking said identified disks read-only as placing a logical volume, which is part of a RAID group, in a write-disable state (see figure 4: RAID group 41, volume D2; column 4: lines 28-47; and column 5: lines 21-35); and

indicating when said inactive disks are made active again as indicating when the fail device is replaced and RAID configuration is resumed (see column 7: lines 8-11).

As to claim 2, Kedem further teaches that said identifying includes a systems operator or the system itself determining that one or more disks are to be made temporarily inactive as the storage system identifying a storage device among the active set of storage devices as entering a failing state (see figure 4 and column 4: lines 63-66).

As to claims 6-7, Kedem further teaches that said indicating includes a systems operator or the system itself determining that one or more inactivated disks should be reactivated and said indicating further includes identifying the disk or disks to the system that should be reactivated as the storage system sends to the controllers a signal indicating when the fail device is replaced and causing the controllers to resume reading and writing data in RAID configuration (see column 7: lines 8-11).

Referring to claim 9, Kedem discloses, in a computer system having a file system that controls reads and writes to a set of disks (see figure 1: elements 12a-n; and figure 2: elements 22a-n, 24), a RAID subsystem providing redundancy among groups of said disks (see figure 2), and wherein said file system or said RAID subsystem is responsive to inactivity of one or more disks to reconstruct data from those inactive disks (see "Abstract"); an apparatus including a memory and a processor (see figure 1-2), wherein said memory including:

an instruction for identifying one or more disks to be made temporarily inactive as an instruction executed by the storage system to identify a storage device among the active set of storage devices as entering a failing state (see figure 4 and column 4: lines 63-66);

an instruction for responding, by said file system, to said identification by marking said identified disks read-only as an instruction executed by the storage system to place a logical volume, which is part of a RAID group, in a write-disable state (see figure 4: RAID group 41, volume D2; column 4: lines 28-47; and column 5: lines 21-35); and

an instruction for indicating when said inactive disks are made active again as an instruction executed by the storage system to indicate when the fail device is replaced and RAID configuration is resumed (see column 7: lines 8-11).

As to claim 10, Kedem further discloses that said instruction for identifying includes an instruction initiated by a systems operator or the system itself determining that one or more disks are to be made temporarily inactive as an instruction executed by the storage system to identify a storage device among the active set of storage devices as entering a failing state (see figure 4 and column 4: lines 63-66).

As to claims 14-15, Kedem further teaches that said instruction for indicating includes an instruction initiated by a systems operator or the system itself for determining that one or more inactivated disks should be reactivated; and said instruction for indicating further includes an instruction for identifying the disk or disks to the system that should be reactivated as an instruction, initiated by the storage system, sending a signal to the controllers indicating when the fail device is replaced and causing the controllers to resume reading and writing data in RAID configuration (see column 7: lines 8-11)..

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Referring to claim 17, Kedem discloses a computer system having a file system that controls reads and writes to a set of disks (see figure 1: elements 12a-n; and figure 2: elements 22a-n, 24), a RAID subsystem providing redundancy among groups of said disks (see figure 2). A host controller receives and interprets read/write request from a host computer; and then sends appropriate request to one of the disk controllers to obtain data (see column 3: lines 16-54). Inherently, the host controller uses a set of binary addresses, wherein one of the binary addresses is linked to a set of disks in the RAID subsystem, when directing read/write request. This set of binary addresses, inherently, can be encoded in a data structure format and stored in a processor readable medium.

9. Claim 17 is rejected under 35 U.S.C. 102(b) as being anticipated by Hodges (U.S. Patent No. 5,835,694).

Referring to claim 17, Hodges discloses a computer system having a file system that controls reads and writes to a set of disks (see "Abstract" and column 2: lines 19-27). Hodges discloses a processor readable medium encoded with data in a data structure including a set of binary addresses wherein each one of said binary addresses is linked to a set of disks in the RAID subsystem (see figure 5: element 72; column 2: lines 25-35; and column 6: lines 11-15).



*Claim Rejections - 35 USC § 103*

10. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

11. Claims 3-4 and 11-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kedem (U.S. Patent No. 6,154,853).

As to claim 3-4, Kedem teaches a step of marking the temporarily inactive disk as read-only.

However, Kedem does not clearly teach that said marking includes recording in one of a set of off-line markers that said disk is read-only and each of said off-line markers is associated with a disk in the RAID subsystem.

It would have been obvious to one having an ordinary level of skill in the art at the time the invention was made to include, in the method taught by Kedem, that said marking includes recording in one of a set of off-line markers that said disk is read-only and each of said off-line markers is associated with a disk in the RAID subsystem. This would have been obvious because using a status bit/marker is a typical and easy way to record the status/state, for example read-only state, for each individual device in a computer system.

As to claim 11-12, Kedem discloses an instruction of marking the temporarily inactive disk as read-only.

However, Kedem does not clearly disclose that said marking includes an instruction for recording in one of a set of off-line markers that said disk is read-only and each of said off-line markers is associated with a disk in the RAID subsystem.

It would have been obvious to one having an ordinary level of skill in the art at the time the invention was made to include, in the apparatus disclosed by Kedem, that said marking includes an instruction for recording in one of a set of off-line markers that said disk is read-only and each of said off-line markers is associated with a disk in the RAID subsystem. This would have been obvious because using a status bit/marker is a typical and easy way to record the status/state, for example read-only state, for each individual device in a computer system.

*Allowable Subject Matter*

12. Claims 5, 8, 13, and 16 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

***Conclusion***

13. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Bao Q Truong whose telephone number is (703) 308-7090. The examiner can normally be reached on Monday-Friday from 8:30 AM to 5:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Donald A Sparks, can be reached on (703) 308-1756. The fax phone number for the organization where this application or proceeding is assigned is (703) 746-7239.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 305-3900.

*Bao Q Truong*

BT

Patent Examiner

November 13, 2003



Donald Sparks

Supervisory Patent Examiner

Technology Center 2100